



United States  
Department of  
Agriculture

Forest  
Service



February 2014

# ***Draft***

## **Decision Notice**

### **Rocket Vegetation Management Project and Forest Plan Amendments**

**Bend/Ft. Rock Ranger District, Deschutes National Forest  
Deschutes County, Oregon**

#### **Predecisional Administrative Review Process:**

This *draft* Decision Notice is made available with the Environmental Assessment for the Rocket project pursuant to 36 CFR 218.7(b). The timeframe for the opportunity to object to this project will begin with publication of a legal notice in *The Bulletin* newspaper. The Forest anticipates that the legal notice will be published on February 14, 2014. See page 12 for more information on the predecisional administrative review process.

#### **For information contact:**

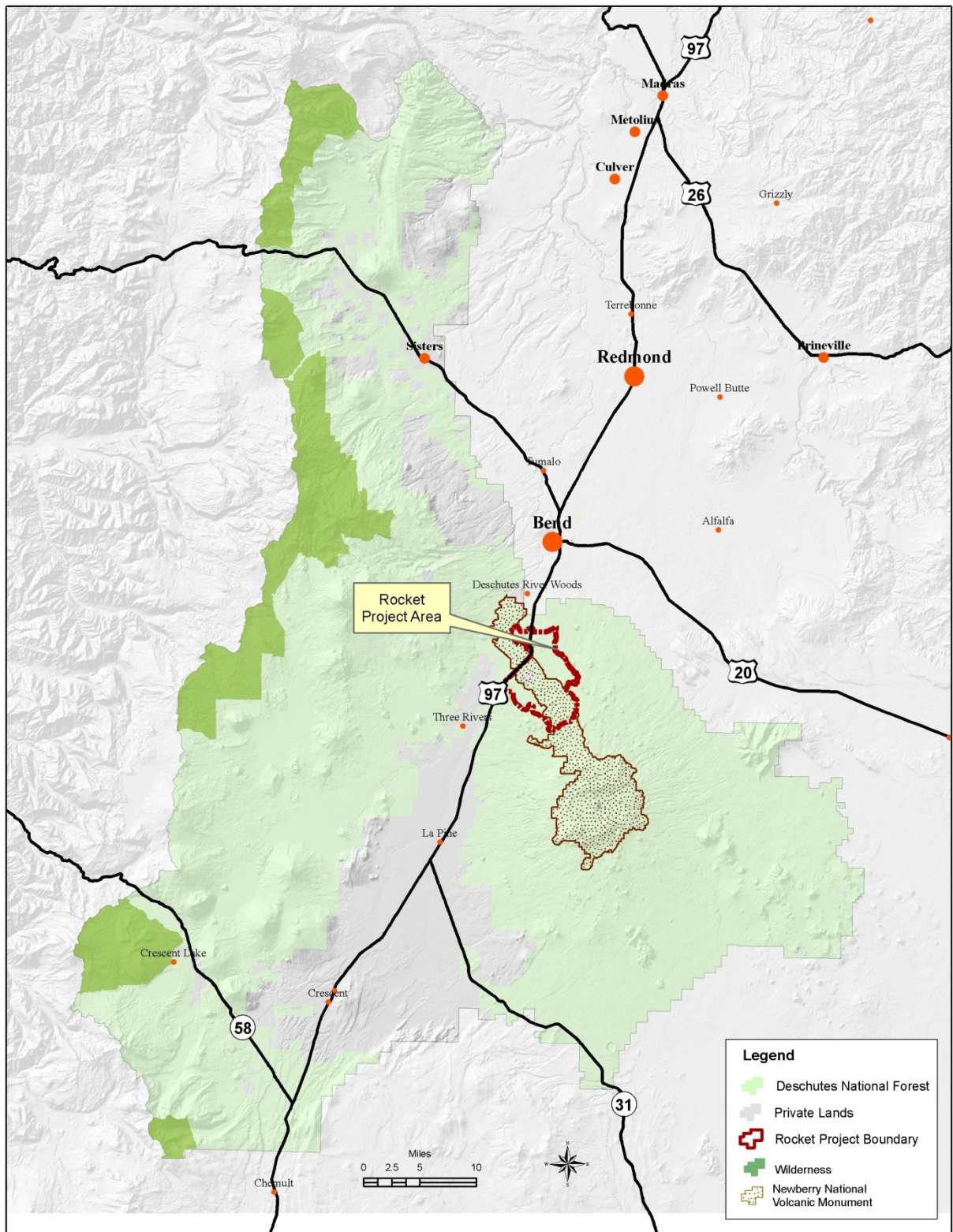
Beth Peer, Environmental Coordinator  
Bend/Ft. Rock Ranger District  
Deschutes National Forest  
[bpeer@fs.fed.us](mailto:bpeer@fs.fed.us)  
Phone (541)383-4769

# Decision Notice

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**Figure 1. Location of the Rocket Project area, Deschutes National Forest.**



# **DRAFT DECISION NOTICE**

## **Rocket Vegetation Management Project**

USDA Forest Service  
Bend/Ft. Rock Ranger District, Deschutes National Forest  
Deschutes County, Oregon

Legal Location: Township 19 South, Range 11 East, T. 19 S., R. 12 E., T. 20 S., R. 11 E., T. 20 S., R. 12 E.  
Willamette Meridian

### **Introduction and Background**

This draft Decision Notice (DN) documents my proposed decision and rationale for the selection of Alternative 4 of the February 2014 Rocket Vegetation Management Project Environmental Assessment. This project will address forest health issues within the project area including tree density, and fuels accumulations, will introduce fire to a fire-adapted landscape, and will provide timber products to the local wood products industry. The draft DN is distributed according to 36 CFR 218.7 providing a 45-day period for objections to be filed prior to making a final decision.

The 22,682-acre Rocket project area is located to the south of Bend, Oregon on a portion of forest that was owned and clearcut by timber interests in the 1930s and 40s. Since that time, the forest has regenerated and is now in a condition where trees are overly dense and fuels pose a fire hazard. A portion of the project area overlaps the Newberry National Volcanic Monument (NNVM); the remainder of the area is in General Forest, Scenic Views, Deer Habitat, and Old Growth Management Areas under the Deschutes National Forest Plan.

The Forest identified a need to improve vegetative resilience to disturbance agents such as insects and fire, a need to improve deer habitat conditions, and a need to produce timber and other wood products. The Environmental Assessment (EA) documents the Forest's consideration of alternative ways to meet the purpose and need, and discloses and compares the environmental effects of the alternatives. Alternative 4 offers the best combination of actions to meet the purpose and need at a landscape level.

This project is a part of the larger Deschutes Collaborative Forest Project, which is a Collaborative Forest Landscape Restoration Act (CFLRA) Project (<http://www.fs.fed.us/restoration/CFLRP>). The CFLRA was enacted in 2009 and encourages collaboration to restore forest resiliency at the landscape scale. The collaborative's recommendations for restoration in second-growth ponderosa pine and mistletoe-infested stands were incorporated into Alternative 4, the selected alternative. For more information on the Deschutes Collaborative Forest Project, see the web site: <http://www.deschutescollaborativeforest.org>.

### **Decision and Rationale**

I have reviewed the EA for the Rocket Vegetation Management Project and the information contained in the project file. I have also reviewed and considered the public comments submitted on this project. I have determined that there is adequate information to make a reasoned choice among alternatives. It is my decision to select Alternative 4, including

associated connected actions, forest plan amendments, resource protection measures, and monitoring, as described in the EA (pp. 28-46).

### Specifics of Decision

Table 1 displays a summary of the treatments in the selected alternative. In most cases the tree and surface fuel treatments overlap, but there are approximately 31 acres where only a fuel treatment will occur and 2,100 acres where only a tree treatment will occur. Maps of the actions involved in the project are included in Appendix A of this DN and a list of all units with the integrated prescription is included as Appendix B. The following tables are summaries of the activities.

Table 1. Summary Treatment Acres

Activity	Acres*
Tree Treatment	
Thinning to 60 ft. avg. BA	2,435
Thinning to mixed range of BA (40 to 80)	4,441
Thinning for dwarf mistletoe reduction	324
Ponderosa pine restoration	638
Opening for deer cover	32
Opening for dwarf mistletoe	24
Aspen enhancement	5
Plantation thin	884
Ladder fuel reduction	1,152
<b>Total</b>	<b>9,938</b>
Fuels Treatment	
Mow	1,118
Mow + underburn	6,748
Handpile/burn (around Lava River Cave)	5
<b>Total</b>	<b>7,871</b>
Temporary road development	5.8 miles
Road closure	38.6 miles
Road decommission	5.4 miles

\*Acres are approximate and do not account for such things as retention patches or areas to protect. Actual treated acres will be fewer.

*Road and Trail Closures:* This decision will substantially reduce open road density in the project area and will contribute to an overall reduction of open road density in the watershed. Nearly 40 miles of road will be put into a maintenance level 1 category (closed) and about 5.4 miles will be decommissioned (Figure DN-3). Approximately 35 miles of user-created OHV trails, primarily single track, will be restored to a productive condition.

*Forest Plan Amendments:* This decision includes four non-significant and site-specific forest plan amendments as described in the EA pp. 36-39. First, an amendment to the Scenic Views standard will allow the effects of prescribed fire to be visible for about five years. Second, Scenic Views standards and guidelines recommend prescribed fire be limited to areas of about

five acres or less. Based on current science on fuels reduction as well as the desire to return fire to fire-dependent ecosystems, the standard is amended to allow larger blocks of prescribed fire to occur. Third, the thermal cover objective of 30% for the Deer Habitat Management Area cannot be met because it is already below that. And fourth, an Eastside Screens standard and guideline is amended to allow thinning to occur in ponderosa pine stands that have large tree structure. These amendments are discussed in the EA pp. 131, 221-222, and 338-340.

*Resource Protection Measures:* This decision includes all resource protection measures described for Alternative 4 in the EA. Resource protection measures are listed in Appendix C of this Decision Notice.

## **Reasons for the Decision**

I have reviewed the EA for the Rocket Vegetation Management Project and the information contained in the project file. I have also reviewed and considered the public comments submitted on this project. I have determined that there is adequate information to make a reasoned choice among alternatives. It is my decision to select Alternative 4, including associated connected actions, forest plan amendments, and resource protection measures, as described in the EA (pp. 28-46), with some modifications. Modifications to Alternative 4 were made following the public comment period and are described below under Public Involvement.

### **1. Response of Alternative 4 to the Purpose and Need**

This project responds to the need for increasing forest resilience to disturbance agents such as insects, disease, and wildfire without completely removing such disturbance agents from the environment. The current condition of the project area is not the result of “natural” development. The area is mostly ponderosa pine of 70-90 years of age; most of the large trees were removed during historic logging, and fire has been suppressed. Dense second-growth ponderosa pine forest such as this is prevalent on the Deschutes National Forest. By thinning and reducing fuels on about 57% of the project area, Alternative 4 makes a reasonable amount of progress in forest restoration while protecting other resource values such as scenery and habitat for species that prefer higher density forest.

Fire hazard reduction will increase resilience of the area to wildfire. Following 7,871 acres of fuel treatment, the amount of acreage rating low for wildfire hazard will increase to about 8,820 acres. This is roughly 50% of the forested portion of the project area. Alternative 4 is also designed for efficiency with larger burn blocks and the use of roads for control lines whenever possible. Alternative 4 will also treat more condition class 2 acres than the other alternatives would have (condition class 2 means the area has moderately departed from the fire regime and is in need of restoration; see EA pp. 61 and 403).

The Rocket project will increase the proportion of the project area resilient to insects and disease by 33%. Thinning has been shown to reduce the amount of ponderosa pine mortality caused by mountain pine beetles and to increase tree growth (EA p. 6-7). Thinning to variable densities across nearly 7,000 acres of densely stocked stands is an important first step in restoring fire-resilient ponderosa pine forests. Healthy vigorous trees have a better chance to continue to grow and become old growth.

Deer habitat conditions are addressed with the selected alternative by incorporating strategically placed openings for deer cover. Nine individual units will be small openings totaling 47 acres will occur specifically for deer habitat enhancement; two additional openings were added to

Alternative 4 for mistletoe treatment (EA p. 106, Table 40). Openings were designed to initiate development of hiding cover and foraging patches that will facilitate movement between the Highway 97 undercrossings and in the deer winter range habitat in the northeastern portion of the project area (EA p. 218). In addition, a substantial amount of road closure and decommissioning will improve habitat effectiveness for deer (EA p. 219).

Alternative 4 increases the economic impact of the project over the other alternatives considered. It will produce about 16 mmbf sawlog timber. Total volume, including biomass would be about 43,000 CCF (EA p. 28).

## **2. Response of Alternative 4 to the Key Issues**

*Tree stocking following Thinning (EA pp. 89-94):* The selected alternative incorporates thinning to a range of basal areas (BA). On 4,441 acres the residual stocking would be a “mixed” BA to allow for higher stocking where trees are over 16 inches diameter at breast height (dbh). This still allows some thinning to the 40-60 BA range where trees are smaller, but will result in more clumps of trees when they are over 16 inches. The visual results will depend on tree size. On the 2,435 acres of thinning to an average of 60 sq. feet BA, variability would also be incorporated to promote a gappy, clumpy character.

*Treatments within the Newberry National Volcanic Monument (NNVM) (EA pp. 95-103):* About 45% of the project area overlaps the Newberry National Volcanic Monument (NNVM) and about half of that area is lava flows. The purpose and need for action is applicable to the entire project area because stands within the Monument exhibit similar characteristics to outside the NNVM: high tree density of mostly second-growth ponderosa pine and hazardous fuels conditions. I believe it’s important to begin working towards the goals of the NNVM for ponderosa pine. The Rocket project will implement restoration treatments on about 23% of the ponderosa pine forest within the entire Monument (1,298 acres commercial thinning followed by mowing and underburning; and 1,073 acres of ladder fuel reduction and/or mowing followed by underburning). Thinning under this alternative would result in 43% of the NNVM (within the project area) remaining in dense forest conditions, rather than the current 71%. Fire cannot be reintroduced without jeopardizing the larger trees because of stand density and ladder fuels. The goals and objectives for the NNVM such as reintroduction of fire through prescribed burning and reestablishment of fire-based, historic ponderosa pine old growth, as well as maintaining migration routes, high quality forage, and cover for deer are best met with Alternative 4, which creates conditions that allow reintroduction of fire on the most acres, while observing the overall intent of the Monument legislation, which is to allow natural ecological succession to the extent practical.

*Created Openings (EA pp. 106-110, 217-218):* There is public disagreement about what size openings should be and what allocations and designations are appropriate. Alternatives varied by the number and size of openings and which allocations they occurred it. Based on scoping comments from the Oregon Department of Fish and Wildlife (ODFW), additional openings were proposed in Alternative 4. ODFW referenced the Fire Learning Network historic range of variability where 25% of the dry ponderosa pine plant associations were in early seral conditions (EA p. 119, Table 43). Alternative 4 will create a total of 11 openings that will range in size from 2.5 acres to 12 acres. A slight modification is made to Alternative 4 with this decision: the two openings that fall within the NNVM (Units 811.3 and 839.2) are reduced in size to 2.5 acres each, reducing the amount of opening within the NNVM from 7 acres to 5 acres. All trees over



21" dbh would be retained in the openings. This amount of early seral conditions when combined with existing openings in the area is not enough to change the proportion of early seral structural conditions within the HRV analysis area. These openings do, however, accelerate the development of forage and hiding cover patches that will facilitate the movement between Highway 97 undercrossings.

*Treatment within Old Growth Management Areas (EA pp. 104-105, 222-226):* Two OGMA's occur in the project area, totaling 253 acres. Alternative 4 will treat a total of 211 acres with thinning or thinning following by mowing and underburning. Both would be thinned to a mixed basal area (40-60-80). This would reduce the proportion of the OGMA's that are above the upper management zone to 38%. Reduced tree density would maintain or improve tree diameter growth rates, improving potential to maintain existing large tree structure and develop additional large tree structure. More than two thirds of the OGMA acres would remain in a dense condition.

*Treatment within Historic Goshawk Post-Fledging Areas (EA pp. 329-340):* There are no active goshawk nests within the project area, confirmed by this year's surveys. The areas that had been delineated as post-fledging areas (PFAs) for historic nests are proposed for 741 acres of thinning and fuels reduction. Thinning will maintain existing large tree structure where it exists, and develop more fire and disease resistant open large tree structure. Nest core stands consisting of about 30 acres of the best habitat have been identified for the north and south PFAs where treatment units occur. These nest core stands will remain untreated. No units occur within the east PFA. (EA pp. 187-195).

*Scenic Views / Aesthetics for Recreation:* The Forests of central Oregon attract a large number of visitors. In the Rocket project, Highway 97 is a particularly prominent scenic corridor. Alternative 4 will maintain and enhance the scenic quality in the area by improving forest health, reintroducing fire, and minimizing the risk that high intensity fire effects or large scale mortality would occur. Resource Protection Measures are included in the alternative to minimize conflicts with recreational activities and to minimize visual impacts. Long term benefits include a more natural appearing landscape that has larger diameter ponderosa pine with more visual diversity in varied sizes and spacing.

*Ratio of Treated to Untreated and Allowing for Natural Processes (EA pp.16-17, 95-103) :* The distribution of untreated stands and patches under Alternative 4 allows 36% of the forested acres to continue be at high stocking levels. This is not considered natural, given that the existing condition is not the result of natural processes. However, the untreated areas provide for retention of hiding and thermal cover for big game, protection of cave and other resources, and other habitat components. Alternative 4 maximizes the amount of forested acres that are thinned to increase resilience and create conditions where large tree structure can develop and fire can occur by treating about 57% of the forested area.

### **3. Consideration of Public Comment and other Resource Issues**

In making this decision I thoroughly considered the comments received during the 30-day public comment period. Appendix F of the EA details the consideration and response to public comments. In responding to comments the interdisciplinary team has supplemented and improved some of the analysis, made factual and editorial corrections, and made clarifications. Specific changes made to the selected alternative since the comment period includes addition of 10% retention patches to be distributed across units in the treated areas which will contribute to

cover and more structural diversity; and two opening units within NNVM reduced in size of 3 and 4 acres to 2.5 acres each. EA pp. 405-455.

## **Other Alternatives Analyzed**

Besides Alternative 4, three additional alternatives were analyzed in detail in the environmental assessment. They include Alternative 1 the No Action, Alternative 2, and Alternative 3. Additional alternatives include those considered but eliminated from detailed analysis (EA p. 48).

### **Alternative 1 (No Action)**

Alternative 1 is the No Action Alternative, used to provide a baseline for comparison of the effects of all of the alternatives. There would be no density management, fuels reduction, or other vegetation management. No road closures or decommissioning would occur, and the user-created trails would not be restored. Alternative 1 does nothing to address the purpose and need described on pages 7-8 of the EA. The EA shows that under Alternative 1 a large proportion of the project area (15,245 acres) would remain at moderate, high, or extreme wildfire hazard rating; 6,433 would be at high or extreme. These conditions can be expected to worsen. These conditions are not acceptable because large scale loss of overstory could occur in the event of a wildfire, as occurred with the 18 Fire and Skeleton Fires in the vicinity. (EA pp. 20, 50-52).

Not thinning dense stands would leave 69% of the area above the upper management zone in stand density index, which means a high risk of serious mortality from bark beetles. Conditions favorable for bark beetles would continue to increase and the ability of trees to resist bark beetle attack would continue to decrease. Existing areas of mistletoe infection would expand and intensify. There would be no progress made in restoration of fire-adapted ponderosa pine forests in the Newberry National Volcanic Monument. And habitat conditions for mule deer would not be improved. For these reasons, I did not select Alternative 1.

### **Alternative 2**

The original proposed action called for thinning within Scenic Views management area and the Monument to an average basal area of 40 sq. feet and treatments over about 42% of the forested portion of the project area (EA pp. 20-23). The smaller treatment size may reduce short-term disturbance effects, but does not benefit sensitive species in the long term by increasing resilience and promoting large tree structure. By foregoing restoration in the NNVM where commercial thinning is a prerequisite, this alternative would limit the Forest's ability to meet the goals and objectives of the NNVM to a smaller area. Also, this alternative does not adequately address all of the issues that were raised during scoping; therefore I did not select it.

### **Alternative 3**

Alternative 3 was designed to address several key issues that arose during scoping such as treatment in OGMA, mechanical treatment in the NNVM, and treatment in PFAs (EA pp. 24-27). This led to an overall reduced footprint of activity. This alternative would forego any commercial thinning within the Monument (except 5 acres of aspen stand restoration), but would allow for ladder fuel reduction, mowing, and prescribed fire to occur on about 1,111 acres. Alternative 3 also would not include any density reduction within OGMA's or historic PFAs. Because I feel it's important to be proactive in management in the ponderosa pine forest and to

increase resiliency in the NNVM, I chose a more active approach as designed in Alternative 4 instead of selecting the more passive approach of Alternative 3.

### **Public Involvement Conducted**

The Rocket Vegetation Management project was initially announced to the public in a letter mailed to 210 individuals and organizations, including representatives of the Confederated Tribes of the Warm Springs, the Burns Paiute Tribe, and the Klamath Tribes, on March 2, 2012. It was subsequently published in the spring 2012 edition of the *Schedule of Projects for the Deschutes and Ochoco National Forests*. The scoping letter was also posted on the Deschutes National Forests NEPA project web site (EA p. 14).

During the scoping period, a total of 17 responses were received from individuals, organizations, agencies and tribes. Responses varied from support for the proposal, to recommended changes to the proposed action, to strong disagreement with certain components of the proposal. Those who contacted the Forest Service about the proposed action include: Karen Coulter (Blue Mountains Biodiversity Project), Bodie Dowding (Interfor), Neal Dunbar, Claude H. Smith III (Warm Springs Forest Products), Lilliann Watah (the Klamath Tribes), Glen Ardt (ODFW), Larry Ulrich, Linda Driskill (Grant County Conservationists), Dick Artley, Joe Stutler (Deschutes County), Michael Krochta, Lydia Garvey, Nick Cady, Alexander Reid Ross, Doug Heiken (Oregon Wild), Douglas Perry (Davenport Newberry Holdings LLC), and Rod Adams.

The 30-day public comment period was initiated on October 23, 2013 and resulted in 16 written comments from individuals and organizations: Gail Carbiener, Nick Cady (Cascadia Wildlands), Jim Anderson, Doug Heiken (Oregon Wild), Loren Irving, George Wuerthner (Alliance for the Wild Rockies), Russ Mitchell, Irene K. Jerome (American Forest Resource Council), Stu Garrett, Meriel Darzen (Oregon Chapter Sierra Club), Dick Artley, Karen Coulter (Blue Mountains Biodiversity Project), Maya Jarrad, Stephanie O'Brien (Burns Paiute Tribe), Ella Deck, and Chuck Burley (Interfor). The comments were carefully reviewed and substantive comments have been responded to individually in Appendix F of the EA. Some comments led to changes in the final EA as noted above in Decision Rationale. (EA pp. 405-455).

### **Consultation with Government Agencies and Tribes**

The following tribal governments were notified of the project proposal: Confederated Tribes of the Warm Springs, Burns Paiute, and the Klamath Tribes (EA p. 14). Government to government conferences included discussions of this project. These Tribal governments did not express any concerns about this project.

The State Historic Preservation Office (SHPO) was consulted during project planning following guidelines in the Regional Programmatic Agreement among USDA-Forest Service, the Advisory Council on Historic Preservation, and the Oregon SHPO. A cultural resource inventory has been completed for the project area. On March 12, 2013, the Deschutes National Forest completed the "Project Review for Heritage Resources under the Terms of the 2004 Programmatic Agreement" with the Oregon State Historic Preservation Officer (SHPO). The activities in the selected alternative have been designed to have no effect to cultural resource sites through both protection and avoidance (EA p. 342-344). On November 6, 2013 the SHPO provided concurrence with the Forest's finding of no effect due to historic properties being avoided (EA p. 355).

Formal consultation with the U.S. Fish and Wildlife Service or National Marine Fisheries Service was not required and did not occur because the project does not adversely affect any habitat for threatened or endangered wildlife or fish species.

## **Legal Requirements and Policy**

In reviewing the EA and actions associated with Alternative 4, I have concluded that my decision is consistent with the following laws and requirements:

### **The National Environmental Policy Act (NEPA)**

NEPA establishes the format and content requirements of environmental analysis and documentation as well as requirements for public involvement and disclosure. The entire process of preparing this environmental impact statement was undertaken to comply with NEPA.

### **The National Forest Management Act (NFMA)**

The Deschutes LRMP was developed under the 1982 Planning Rule.

We find this decision to be consistent with the long term management objectives as discussed in the Deschutes National Forest Plan as amended, except as discussed below. All other Forest Plan direction, including from the Regional Forester's Forest Plan Amendment #2 (Eastside Screens) has been adhered to and incorporated into the project's design.

*Site-Specific Forest Plan Amendments:* These amendments will not have an impact on the goals and objectives for the Forest Plan and they provide for activities that contribute to meeting the Scenic Views and Deer Habitat management area objectives. All other aspects of the selected alternative are consistent with the direction in the Forest Plan and Eastside Screens. I find the amendments described and discussed in the EA (pp. 36-39, 131, 221, 338-340) to be non-significant based on the analysis in the EA.

I find the selected alternative to be consistent with the requirements of the National Forest Management Act implementing regulations; specifically under Alternative 4, there is no timber harvest on lands classified as unsuitable for timber production and Alternative 4 is consistent with the seven management requirements and the vegetation requirements from 36 CFR 219.217.

### **Newberry National Volcanic Monument**

Legislation establishing the Monument states that the Management Plan shall address certain management issues. Those pertinent to the current project include:

“Vegetation, including consideration of a full range of management options, and a program to reestablish old growth ponderosa pine ecosystems.”

“Fire and fuel management prescriptions, including consideration of a full range of management options for fuel hazard reduction and prescribed fire and fire control strategies to minimize the risk of catastrophic wildfire and to meet other resource objectives.” And,

“Wildlife management, including general prescriptions for wildlife habitat improvements.”

I find the selected alternative to be consistent with the Newberry National Volcanic Monument comprehensive Management Plan in the following areas: vegetation management (EA pp. 94, 109, 141); fuel management (EA pp. 57, 58, 69); wildlife habitat management (EA p. 195 (goshawk), p. 221 (elk and mule deer).

**The Endangered Species Act of 1973, as amended**

A Biological Evaluation was prepared to document the possible effects of the proposed activities to threatened and endangered wildlife species within the project area. The selected alternative is determined to have “No Effect” to the gray wolf, northern spotted owl or its critical habitat, Oregon spotted frog or its critical habitat, and California wolverine (EA pp. 144-149). It has been determined that implementation of all of the proposed activities will have no effect to any threatened or endangered fish or plant species and would have either no impact on any sensitive wildlife species or associated habitat or may impact individuals or habitat but not cause a trend toward federal listing (EA pp. 149-182).

**The Clean Air Act**

The selected alternative will comply with the Clean Air Act. The Act prescribes air quality to be regulated by each individual state. The Forest Service will follow directions of the Oregon State Forester in conducting prescribed burning in order to achieve strict compliance with all aspects of the Clean Air Act and adherence to the Oregon Smoke Management Plan (EA pp. 81-82).

**Civil Rights and Environmental Justice**

Executive Order 12898 on environmental justice requires federal agencies to identify and address any disproportionately high and adverse human health or environmental effects on minority and low income populations. The analysis focuses on potential effects from the project to minority populations, disabled persons, and low-income groups.

After evaluating the discussion in the EA p. 352, I have determined that there would be no discernible impacts from any of the alternatives on Native Americans, women, other minorities, or the Civil Rights of any American citizen.

**Implementation**

Implementation is expected to begin in the fall of 2014. I reviewed the EA and associated appendices and believe there is adequate information within these documents to provide a reasoned choice of action. I am fully aware of adverse effects that cannot be avoided and believe the risks are outweighed by the benefits. Implementing the selected alternative will cause no unacceptable cumulative impact to any resource.

Minor changes may be needed during implementation to better meet on-site resource management and protection objectives. In determining whether and what kind of further NEPA action is required, we will consider the criteria at FSH 1909.15, sec. 18. Connected or interrelated proposed changes regarding particular areas or specific activities will be considered together in making this determination. The cumulative impacts of these changes will also be considered.

Minor adjustments to unit boundaries may be needed during final layout for resource protection, to improve logging system efficiency, and to better meet the intent of our decision. Many of these minor changes will not present sufficient potential impacts to require any specific documentation or action to comply with applicable laws.

## **Finding of No Significant Impact**

The following intensity factors were used to assess the potential for environmental effects to be significant.

1. *Impacts that may be both beneficial and adverse.* My finding of no significant environmental effects is not biased by the beneficial effects of the action. The beneficial and adverse impacts are disclosed in the EA and no significant effects on the human environment have been identified. As described in the Rocket EA, beneficial and adverse effects and the reasons they are not expected to be significant include:

Water Quality and Fisheries – There would be no effects to water resources, riparian areas, floodplains, or wetlands from implementing the Selected Alternative. There would be no effects to fisheries or Essential Fish Habitat from implementing the Selected Alternative. This is because there is no water in the project area. EA p. 10.

Threatened/Endangered, and Sensitive Wildlife Species – No habitat or designated critical habitat exists within or adjacent to the project area for the gray wolf, northern spotted owl, or Oregon spotted frog. There would be no effects to habitat for these species or their critical habitat (EA pp. 144-149). There would no impact to the following R6 Sensitive species: spotted bat, pygmy rabbit, Pacific fisher, Columbia spotted frog, Crater Lake tightcoil, evening field slug, silver-boarded fritillary. For the following R6 Sensitive species the project May Impact individuals or habitat but would not lead to a trend towards Federal listing or contribute to a loss of viability on the Deschutes NF: Townsend's big-eared bat, pallid bat, fringed myotis, Johnson's hairstreak and western bumblebee. For the Lewis' and white-headed woodpeckers, the project may impact due to disturbance and will have a beneficial impact to habitat. EA pp. 149-182.

Management Indicator Species (MIS) – The EA describes potential adverse and beneficial effects that would occur depending on the habitat type affected. The analysis determined the project would not contribute to a downward trend in any MIS population viability at the Forest Level. Numerous project design features are incorporated to ensure consistency with LRMP direction. The analysis determined the project would not contribute to a downward trend in any MIS population viability at the Forest level (EA pp. 183-291).

Botanical Species – No direct or indirect effects have been identified for threatened, endangered and sensitive species because TES plant species do not exist within the project (EA p. 318).

Soils – there are no major soils related concerns. Alternative 4 will meet LRMP standards for soil productivity and comply with the recommended management guidelines that ensure adequate retention of snags, coarse woody debris, and fine organic matter following both harvest and fuels treatments (EA pp. 292-317).

Recreation – The Selected Alternative minimally one developed recreation site, with long term benefits from more sustained, healthy forest (EA p. 323-329).

Cultural Resources – There will be no direct and indirect effects to known cultural resource sites as a result of activities described in Alternative 4 because all eligible and unevaluated sites would be avoided, and any discovered during implementation would also be avoided (EA p. 342-344).

2. Public health and safety. Significant effects to public health and safety are not anticipated to result from implementation of Alternative 4 because implementation incorporates appropriate safety measures as required by OSHA smoke management will occur to ensure compliance with the Clean Air Act and these types of projects have not been shown to produce significant health or safety effects in the past (EA pp. 350-351).

3. *Unique characteristics of the area such as park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.* There are no park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas in the Rocket project.

4. *The degree to which the effects area likely to be highly controversial.* The nature of potential effects of forest management activities proposed in this project is well established and not likely to be highly controversial in a scientific context. I have reviewed science submitted by the public and found nothing new to significantly contradict the science utilized to develop alternatives and assess the impacts of the alternatives. While the public may perceive some aspect of the project to be controversial, there is no known scientific controversy over the impacts of the decision.

5. *The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.* The effects on the human environment from Alternative 4 are not uncertain and do not involve unique or unknown risks. All proposed actions are standard practices that have been previously implemented with known cause and effect relationships.

6. *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.* The action will not establish a precedent for future actions with significant effects, because it conforms to all existing Forest Plan direction except for non-significant site specific amendments. Future undertakings are subject to NEPA procedures.

7. *Cumulative effects.* No significant cumulative effects have been identified: EA pp. 79-80, 91, 99, 105, 108-109, 124, 137, 141, 144, 157-158, 160, 161, 162, 176, 182, 196, 199, 204-205, 220, 225, 235-237, 242, 256, 262, 269-270, 277-278, 284-285, 289, 290, 315-316, 320-321, 323, 327-328, 329, 335, 336, 344, 346, 350.

8. *Degree action may affect sites listed in or eligible for listing in the National Register of Historic Places or may cause loss of destruction of significant scientific, cultural, or historical resources.* Eligible historic and cultural resources will be flagged and avoided during ground disturbing activities. A finding of “No Historic Properties Adversely Affected” was made for this project.

9. *Degree action may adversely affected endangered or threatened species or its habitat that has been determined to be critical under the ESA.* No threatened or endangered species or designated critical habitat exists within or adjacent to the project area. The Biological Evaluation considered the gray wolf, northern spotted owl and its critical habitat, and Oregon spotted frog and its critical habitat. There would be no effects to these species or their critical habitat (EA p. 144-149).

10. *This action does not threatened a violation of Federal, State, or local law or requirements imposed for the protection of the environment.* All applicable laws and regulations were considered in the planning of this project such as Clean Air Act (EA pp. 81-82) and the Newberry National Volcanic Monument Legislation (EA p. 9).

## Predecisional Administrative Review Process

This project is subject to pre-decisional administrative review pursuant to 36 CFR 218, Subpart B. Also called the “objection process” the predecisional administrative review process replaced the appeal process in March of this year. The primary difference with the objection process is that a person may object to a project prior to the final decision, whereas under the appeal procedures, appeals were made after the decision. The full text of the rule can be found here: <http://federal.eregulations.us/cfr/title/5/28/2013/title36/chapterII/part218>.

Only individuals or organizations that submitted specific written or oral comments during a designated opportunity for public participation (scoping or the 30 day public comment period) may object (36 CFR 218.5). Notices of objection must meet the requirements of 36 CFR 218.8. Objections can be submitted in writing, either electronically or in hard copy but must be filed with the Reviewing Officer within 45 days from the date of publication of notice of the opportunity to object in The Bulletin, Bend, OR. The publication date is the exclusive means for calculating the time to file an objection. Those wishing to file an objection to this decision should not rely upon dates or timeframe information provided by any other source. Objections must be received before the close of the fifth business day after the objection filing period.

Incorporation of documents by reference is not allowed, except for the following list of items that may be referenced by including date, page, and section of the cited document, along with a description of its content and applicability to the objection: 1) all or any part of a federal law or regulation; 2) Forest Service directives and land management plans; 3) documents referenced by the Forest Service in the subject EIS; or 4) comments previously provided to the Forest Service by the objector during public involvement opportunities for the proposed project where written comments were requested by the responsible official. All other documents must be included with the objection.

Issues raised in objections must be based on previously submitted specific written comments regarding the proposed project or activity and attributed to the objector, unless the issue is based on new information that arose after the opportunities for comment. The burden is on the objector to demonstrate compliance with this requirement for objection issues.

Minimum requirements of an objection area described at 218.8(d). An objection must include a description of those aspects of the proposed project addressed by the objection, including specific issues related to the proposed project; if applicable, how the objector believes the environmental analysis or draft decision specifically violates law, regulation, or policy; suggested remedies that would resolve the objection; supporting reasons for the reviewing officer to consider; and a statement that demonstrates the connection between prior specific written comments on the particular proposed project or activity and the content of the objection, unless the objection concerns an issue that arose after the designated opportunities for comment.

Objections may be:

- Postal Delivery: *Reviewing Officer, Pacific Northwest Region, USDA Forest Service, Attn. 1570 Appeals and Objections, PO Box 3623, Portland, OR 97208-3623;*
- Emailed to: [objections-pnw-regional-office@fs.fed.us](mailto:objections-pnw-regional-office@fs.fed.us). Please put OBJECTION and the project name in the subject line. Electronic objections must be submitted as part of an actual e-mail message, or as an attachment in Microsoft Word (.doc), rich text format



(.rtf), or portable document format (.pdf) only. E-mails submitted to addresses other than the ones listed above or in formats other than those listed above or containing viruses will be rejected. It is the responsibility of the objector to confirm receipt of objections submitted by electronic mail. For electronically mailed objections, the sender should normally receive an automated electronic acknowledgement from the agency as confirmation of receipt. If the sender does not receive an automated acknowledgement of receipt, it is the sender's responsibility to ensure timely receipt by other means;

- Hand deliveries: *Pacific Northwest Regional Office, 1220 SW 3<sup>rd</sup> Avg., Portland, OR 97204*. Hand deliveries can occur between 8:00 AM and 4:30 PM, Monday through Friday except legal holidays; or
- Faxed to: *Regional Forester, Attn: 1570 Appeals and Objections at (541)383-5553*.

### **Contact Persons / Further Information**

Project records are on file at the Bend/Ft. Rock Ranger District office. The EA and other project documents are available on the internet at [http://data.ecosystem-management.org/nepaweb/nepa\\_project\\_exp.php?project=38281](http://data.ecosystem-management.org/nepaweb/nepa_project_exp.php?project=38281).

For additional information concerning the specific activities authorized with this decision, you may contact:

Beth Peer, Environmental Coordinator  
Bend/Ft. Rock Ranger District  
63095 Deschutes Market Road  
Bend, OR 97701  
(541) 383-4769

Kevin Larkin, District Ranger  
Bend-Ft. Rock Ranger District  
63095 Deschutes Market Road  
Bend, OR 97701  
(541) 383-4766

### **Responsible Official**

The Supervisor of the Deschutes National Forest is the official responsible for deciding the type and extent of management activities in the Rocket project area.

*signature reserved for final decision*  
JOHN ALLEN  
Deschutes National Forest Supervisor

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## Appendix A – Maps of Selected Alternative

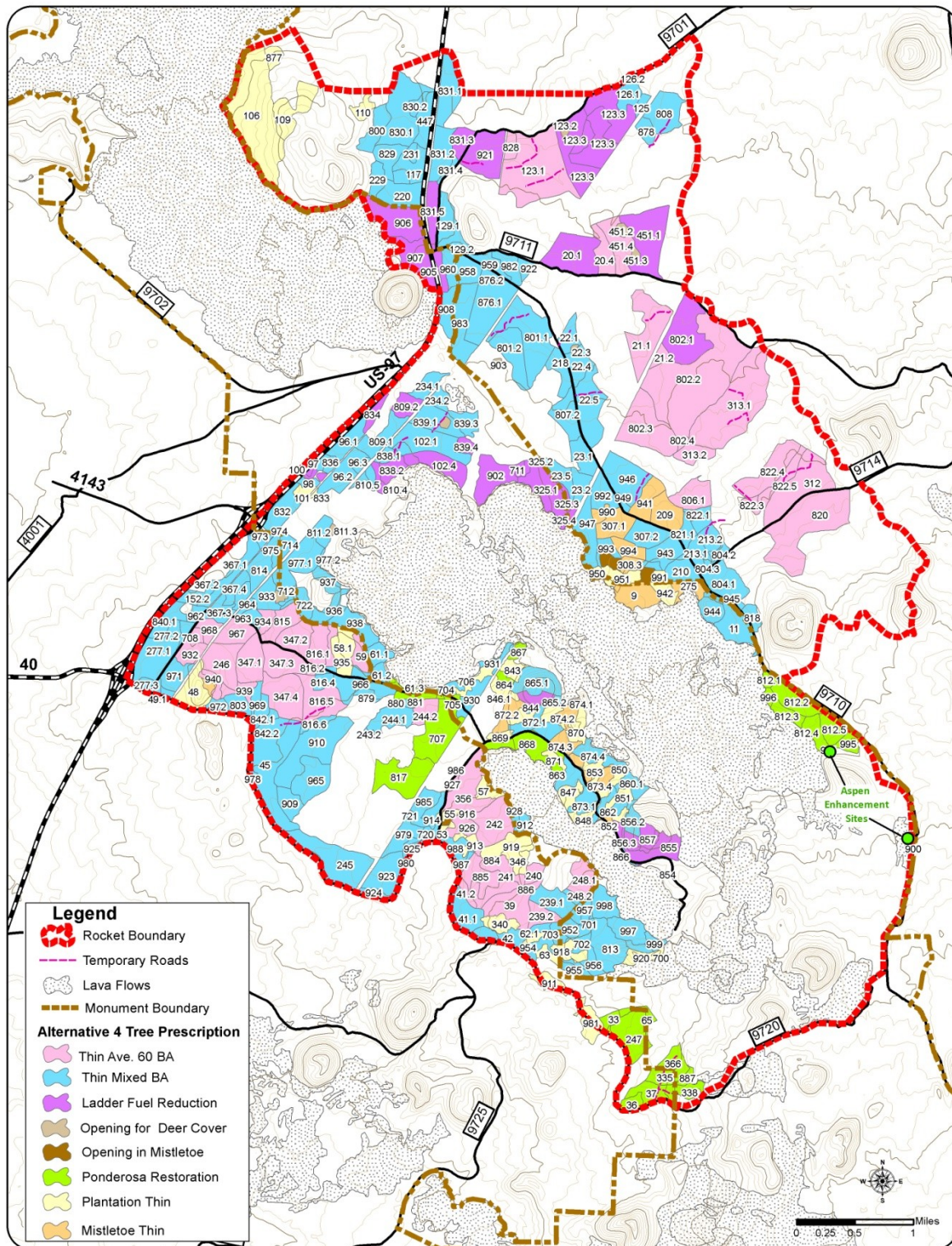


Figure DN-1. Map displaying units with tree treatment prescription.



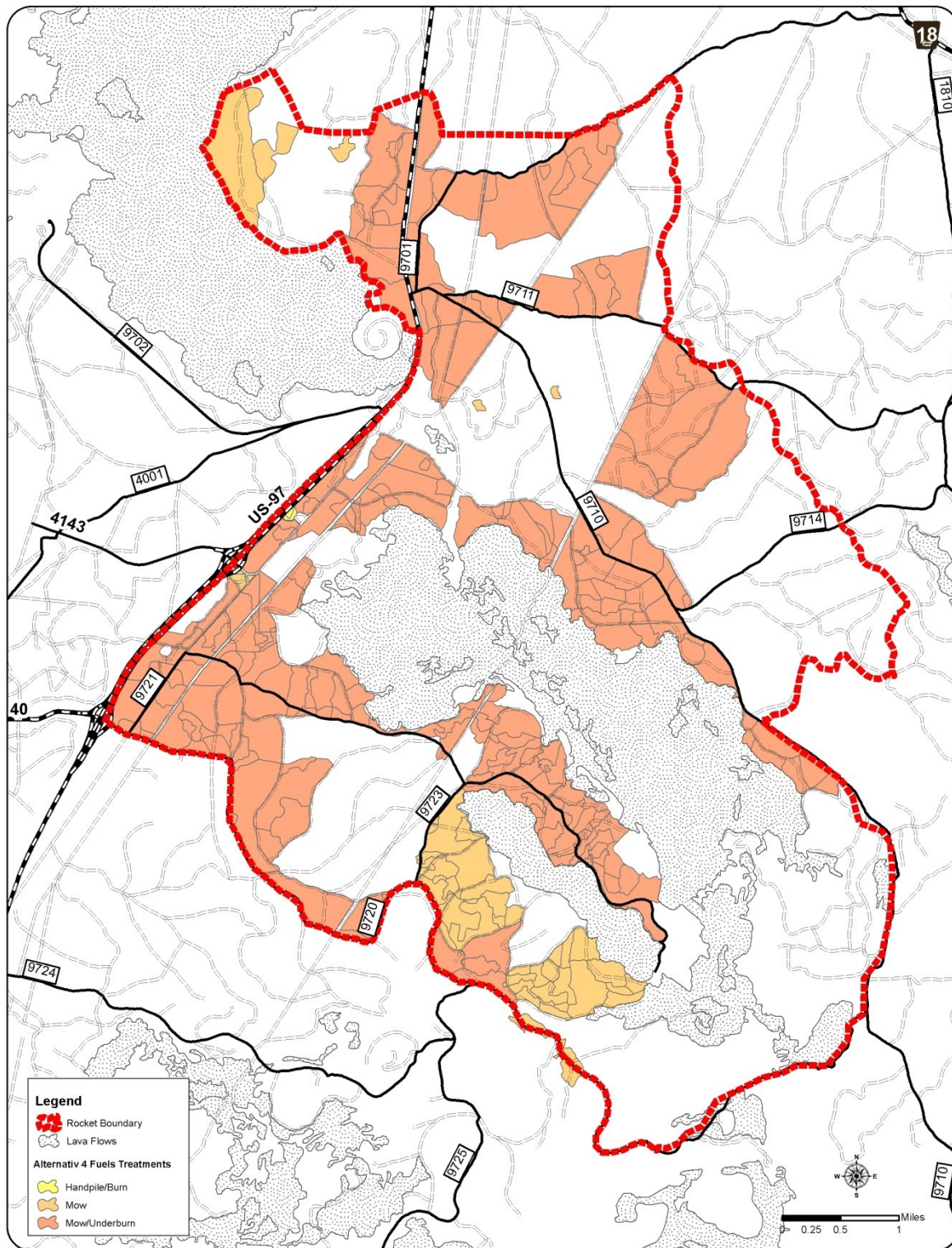


Figure DN-2: Map displaying fuel treatments.



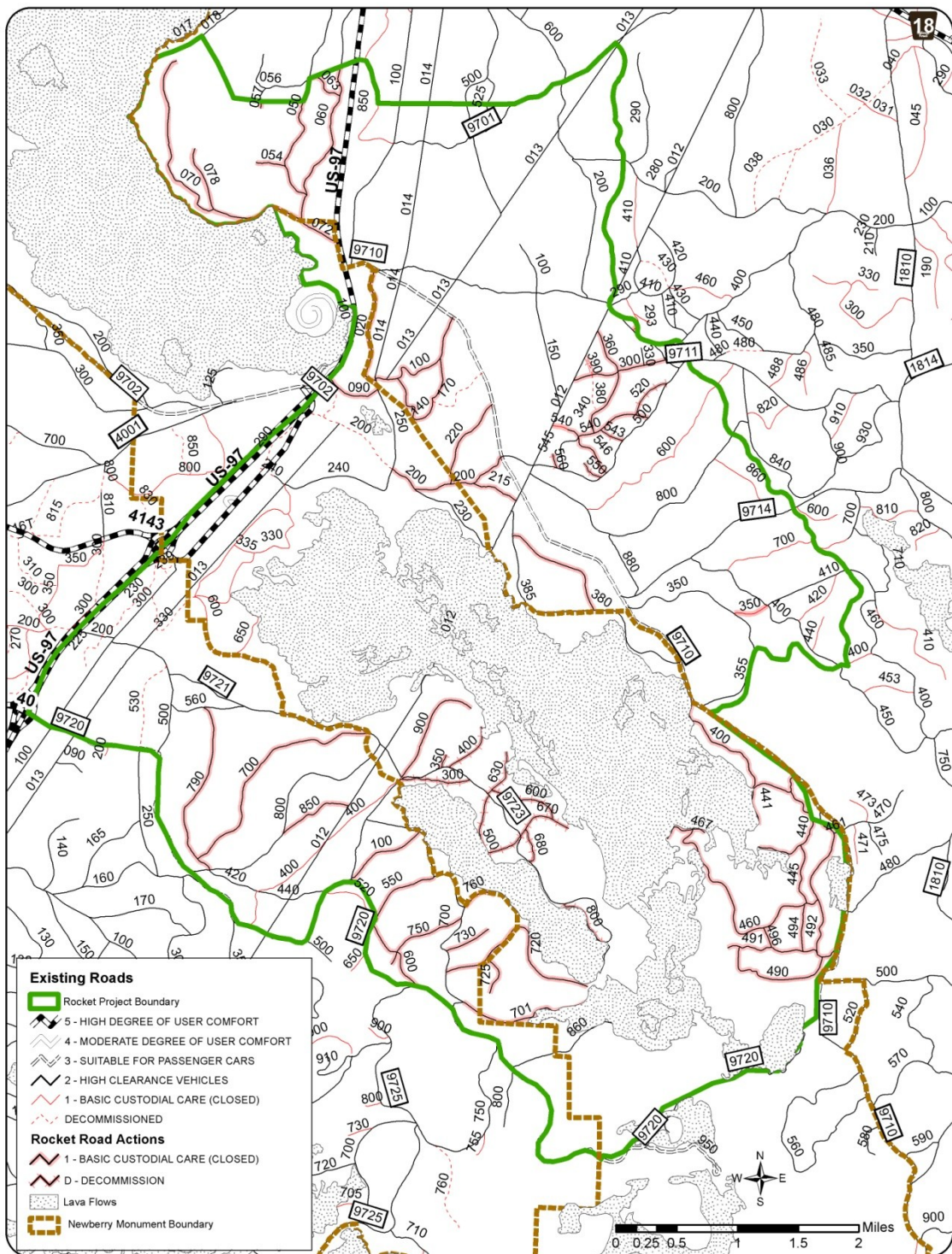


Figure DN-3: Map displaying road closures and decommissioning. Of 38.6 miles of closures, 19.3 are within the NNVM; of 5.4 miles decommissioning, 4.4 miles are within NNVM.

## Appendix B – Unit Prescriptions for Selected Alternative

Unit Number	Acres	Alt. 4 Tree Prescription	Alt. 4 Fuels Prescription	Alt. 4 Slash Treatment
9.0	46	Thin for Mistletoe	Mow/Underburn	Pile / Lop & Scatter
11.0	51	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
20.1	86	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
20.4	34	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
21.1	91	Thin to 60 avg. BA	None	Mix of Methods
21.2	12	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
22.1	22	Thin to mixed BA (40-80)	None	Mix of Methods
22.3	4	Opening - Deer Hab.	Mow	Mix of Methods
22.4	29	Thin to mixed BA (40-80)	None	Mix of Methods
22.5	71	Thin to mixed BA (40-80)	None	Mix of Methods
23.1	32	Thin to mixed BA (40-80)	None	Mix of Methods
23.2	21	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
23.5	27	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
33.0	14	Ponderosa Restoration	None	Grapple Pile
36.0	13	Ponderosa Restoration	None	Mix of Methods
37.0	36	Ponderosa Restoration	None	Grapple Pile
39.0	65	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
41.1	46	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
41.2	9	Thin to 60 avg. BA	Mow	Mix of Methods
42.0	38	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
45.0	145	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
48.0	43	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
49.1	5	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
49.2	4	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
53.0	3	Plantation Thin	Mow	Grapple Pile / Masticate
55.0	6	Plantation Thin	Mow	Grapple Pile / Masticate
57.0	17	Plantation Thin	Mow	Grapple Pile / Masticate
58.1	35	Plantation Thin	Mow/Underburn	Mix of Methods
58.2	7	Plantation Thin	Mow/Underburn	Mix of Methods
59.0	22	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
61.1	20	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
61.2	13	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
61.3	10	Ponderosa Restoration	Mow/Underburn	Grapple Pile
62.1	11	Plantation Thin	Mow	Grapple Pile / Masticate
62.2	1	Plantation Thin	Mow	Grapple Pile / Masticate
63.0	10	Plantation Thin	Mow	Grapple Pile / Masticate
65.0	11	Ponderosa Restoration	None	Grapple Pile

Unit Number	Acres	Alt. 4 Tree Prescription	Alt. 4 Fuels Prescription	Alt. 4 Slash Treatment
96.1	31	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
96.2	44	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
96.3	7	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
97.0	6	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
98.0	7	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
99.0	2	Ladder Fuel Reduction	Handpile/Burn	Pile / Lop & Scatter
100.0	3	Ladder Fuel Reduction	Handpile/Burn	Pile / Lop & Scatter
101.0	10	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
102.1	71	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
102.2	8	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
102.3	7	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
102.4	42	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
106.0	216	Plantation Thin	Mow	Grapple Pile / Masticate
109.0	55	Plantation Thin	Mow	Grapple Pile / Masticate
110.0	16	Plantation Thin	Mow	Grapple Pile / Masticate
117.0	33	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
123.1	181	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
123.2	5	Opening - Deer Hab.	Mow/Underburn	Mix of Methods
123.3	63	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
123.3	71	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
123.3	65	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
123.3	16	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
125.0	8	Thin to mixed BA (40-80)	None	Mix of Methods
126.1	26	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
126.2	4	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
129.1	47	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
129.2	7	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
152.2	20	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
209.0	43	Thin for Mistletoe	Mow/Underburn	Pile / Lop & Scatter
210.0	31	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
213.1	19	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
213.2	20	Thin to mixed BA (40-80)	None	Mix of Methods
218.0	30	Thin to mixed BA (40-80)	None	Grapple Pile
220.0	45	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
229.0	20	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
230.0	10	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
231.0	9	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
234.1	23	Thin to mixed BA (40-80)	None	Mix of Methods
234.2	15	Thin to mixed BA (40-80)	None	Mix of Methods
239.1	39	Thin to mixed BA (40-80)	None	Mix of Methods

Unit Number	Acres	Alt. 4 Tree Prescription	Alt. 4 Fuels Prescription	Alt. 4 Slash Treatment
239.2	24	Thin to 60 avg. BA	None	Mix of Methods
240.0	15	Thin to 60 avg. BA	Mow	Mix of Methods
241.0	50	Thin to 60 avg. BA	Mow	Mix of Methods
242.0	68	Thin to 60 avg. BA	Mow	Mix of Methods
243.2	3	Thin to mixed BA (40-80)	None	Grapple Pile
244.1	40	Thin to mixed BA (40-80)	None	Mix of Methods
244.2	22	Thin to 60 avg. BA	None	Mix of Methods
245.0	99	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
246.0	56	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
247.0	62	Ponderosa Restoration	None	Grapple Pile
248.1	37	Thin to 60 avg. BA	None	Mix of Methods
248.2	6	Thin to mixed BA (40-80)	None	Grapple Pile
275.0	21	Thin for Mistletoe	Mow/Underburn	Pile / Lop & Scatter
277.1	76	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
277.2	10	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
277.3	8	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
278.0	3	Ladder Fuel Reduction	None	Pile / Lop & Scatter
307.1	39	Thin for Mistletoe	Mow/Underburn	Mix of Methods
307.2	40	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
308.1	2	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
308.2	12	Opening - Mistletoe	Mow/Underburn	Mix of Methods
308.3	13	Thin for Mistletoe	Mow/Underburn	Pile / Lop & Scatter
308.4	8	Opening - Mistletoe	Mow/Underburn	Grapple Pile
308.5	7	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
312.0	102	Thin to 60 avg. BA	None	Mix of Methods
313.1	190	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
313.2	27	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
325.1	61	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
325.2	5	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
325.3	7	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
325.4	11	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
335.0	19	Ponderosa Restoration	None	Grapple Pile
338.0	17	Ponderosa Restoration	None	Grapple Pile
340.0	22	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
346.0	21	Plantation Thin	Mow	Grapple Pile / Masticate
347.1	51	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
347.2	42	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
347.3	53	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
347.4	72	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
352.0	1	Thin to mixed BA (40-80)	Mow	Mix of Methods



Unit Number	Acres	Alt. 4 Tree Prescription	Alt. 4 Fuels Prescription	Alt. 4 Slash Treatment
354.0	4	Opening - Mistletoe	Mow	Mix of Methods
356.0	71	Thin to 60 avg. BA	Mow	Mix of Methods
360.0	8	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
366.0	26	Ponderosa Restoration	None	Grapple Pile
367.1	28	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
367.2	10	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
367.3	14	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
367.4	19	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
367.5	12	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
447.0	37	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
451.1	98	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
451.2	7	Opening - Deer Hab.	Mow/Underburn	Mix of Methods
451.3	5	Opening - Deer Hab.	Mow/Underburn	Mix of Methods
451.4	48	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
700.0	8	Thin to mixed BA (40-80)	Mow	Mix of Methods
701.0	9	Thin to mixed BA (40-80)	Mow	Mix of Methods
702.0	23	Thin to mixed BA (40-80)	Mow	Mix of Methods
703.0	12	Thin to mixed BA (40-80)	Mow	Mix of Methods
704.0	11	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
705.0	12	Ponderosa Restoration	None	Grapple Pile
706.0	18	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
707.0	76	Ponderosa Restoration	None	Grapple Pile
708.0	9	Thin to 60 avg. BA	Mow/Underburn	Grapple Pile
709.0	7	Thin for Mistletoe	Mow/Underburn	Grapple Pile
711.0	6	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
712.0	10	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
714.0	14	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
715.0	1	Thin to mixed BA (40-80)	Mow	Mix of Methods
716.0	5	Opening - Deer Hab.	Mow/Underburn	Mix of Methods
717.0	1	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
720.0	3	Thin to mixed BA (40-80)	None	Grapple Pile
721.0	2	Thin to mixed BA (40-80)	None	Mix of Methods
722.0	18	Thin to mixed BA (40-80)	None	Mix of Methods
800.0	33	Thin to mixed BA (40-80)	None	Mix of Methods
801.1	110	Thin to mixed BA (40-80)	None	Mix of Methods
801.2	56	Thin to mixed BA (40-80)	None	Mix of Methods
802.1	96	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
802.2	285	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
802.3	103	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
802.4	5	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods

Unit Number	Acres	Alt. 4 Tree Prescription	Alt. 4 Fuels Prescription	Alt. 4 Slash Treatment
803.0	20	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
804.1	62	Thin to mixed BA (40-80)	None	Mix of Methods
804.2	11	Thin to mixed BA (40-80)	None	Mix of Methods
804.3	5	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
806.1	44	Thin to 60 avg. BA	None	Mix of Methods
807.2	44	Thin to mixed BA (40-80)	None	Mix of Methods
808.0	54	Thin to mixed BA (40-80)	None	Mix of Methods
809.1	38	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
809.2	23	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
810.1	2	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
810.2	7	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
810.3	8	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
810.4	3	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
810.5	8	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
811.2	21	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
811.3	3	Opening - Deer Hab.	Mow/Underburn	Mix of Methods
812.1	11	Ponderosa Restoration	Mow/Underburn	Mix of Methods
812.2	48	Ponderosa Restoration	Mow/Underburn	Mix of Methods
812.3	20	Ponderosa Restoration	Mow/Underburn	Mix of Methods
812.4	25	Ponderosa Restoration	Mow/Underburn	Mix of Methods
812.5	30	Ponderosa Restoration	Mow/Underburn	Mix of Methods
813.0	71	Thin to mixed BA (40-80)	Mow	Mix of Methods
814.0	30	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
815.0	36	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
816.1	34	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
816.2	5	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
816.3	3	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
816.4	13	Thin to mixed BA (40-80)	None	Mix of Methods
816.5	62	Thin to 60 avg. BA	None	Mix of Methods
816.6	13	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
817.0	75	Ponderosa Restoration	None	Mix of Methods
818.0	16	Thin to mixed BA (40-80)	None	Mix of Methods
820.0	176	Thin to 60 avg. BA	None	Grapple Pile
821.1	18	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
821.3	10	Thin to mixed BA (40-80)	None	Mix of Methods
822.1	13	Thin to mixed BA (40-80)	None	Grapple Pile
822.3	11	Thin to 60 avg. BA	None	Mix of Methods
822.4	67	Thin to 60 avg. BA	None	Grapple Pile
822.5	30	Thin to 60 avg. BA	None	Mix of Methods
828.0	14	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods

Unit Number	Acres	Alt. 4 Tree Prescription	Alt. 4 Fuels Prescription	Alt. 4 Slash Treatment
829.0	31	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
830.1	96	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
830.2	9	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
831.1	57	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
831.2	45	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
831.3	24	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
831.4	7	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
831.5	32	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
832.0	39	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
833.0	2	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
834.0	14	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
836.0	8	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
838.1	11	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
838.2	21	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
839.1	41	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
839.2	4	Opening - Deer Hab.	Mow/Underburn	Mix of Methods
839.3	23	Thin to mixed BA (40-80)	None	Mix of Methods
839.4	12	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
840.1	28	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
840.2	11	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
842.1	13	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
842.2	10	Thin to mixed BA (40-80)	Mow/Underburn	Pile / Lop & Scatter
843.0	15	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
844.0	13	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
845.0	11	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
846.1	11	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
846.2	3	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
847.0	20	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
848.0	12	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
849.0	4	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
850.0	8	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
851.0	16	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
852.0	6	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
853.0	15	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
854.0	31	None	Mow/Underburn	None
855.0	51	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
856.2	20	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
856.3	11	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
857.0	21	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
859.1	8	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile

Unit Number	Acres	Alt. 4 Tree Prescription	Alt. 4 Fuels Prescription	Alt. 4 Slash Treatment
859.2	3	Thin for Mistletoe	Mow/Underburn	Grapple Pile
860.1	20	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
861.0	3	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
862.0	9	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
863.0	6	Ponderosa Restoration	Mow/Underburn	Grapple Pile
864.0	10	Ponderosa Restoration	Mow/Underburn	Grapple Pile
865.1	49	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
865.2	17	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
866.0	6	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
867.0	10	Ponderosa Restoration	Mow/Underburn	Grapple Pile
868.0	53	Ponderosa Restoration	Mow/Underburn	Grapple Pile
869.0	9	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
870.0	27	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
871.0	10	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
872.1	27	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
872.2	24	Thin for Mistletoe	Mow/Underburn	Mix of Methods
873.1	52	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
873.2	6	Thin for Mistletoe	Mow/Underburn	Mix of Methods
873.3	4	Thin for Mistletoe	Mow/Underburn	Mix of Methods
873.4	16	Thin for Mistletoe	Mow/Underburn	Mix of Methods
874.1	15	Thin for Mistletoe	Mow/Underburn	Grapple Pile
874.2	19	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
874.3	19	Thin for Mistletoe	Mow/Underburn	Grapple Pile
874.4	30	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
876.1	89	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
876.2	9	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
877.0	14	Plantation Thin	Mow	Grapple Pile / Masticate
878.0	17	Thin to mixed BA (40-80)	None	Mix of Methods
879.0	9	Thin to mixed BA (40-80)	None	Grapple Pile
880.0	6	Thin to mixed BA (40-80)	None	Mix of Methods
881.0	18	Ponderosa Restoration	None	Mix of Methods
882.0	2	Ponderosa Restoration	None	Grapple Pile
883.0	2	Thin to 60 avg. BA	Mow	Grapple Pile
884.0	2	Thin to 60 avg. BA	Mow	Grapple Pile
885.0	40	Thin to 60 avg. BA	Mow	Mix of Methods
886.0	6	Thin to 60 avg. BA	Mow	Mix of Methods
887.0	8	Ponderosa Restoration	None	Grapple Pile
900.0	4	Aspen Enhancement	None	Pile / Lop & Scatter
901.0	1	Aspen Enhancement	None	Pile / Lop & Scatter
902.0	54	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter

Unit Number	Acres	Alt. 4 Tree Prescription	Alt. 4 Fuels Prescription	Alt. 4 Slash Treatment
903.0	4	Opening - Deer Hab.	Mow	Grapple Pile
905.0	14	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
906.0	75	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
907.0	55	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
908.0	27	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
909.0	26	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
910.0	104	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
911.0	18	Plantation Thin	Mow	Grapple Pile / Masticate
912.0	11	Thin to mixed BA (40-80)	None	Grapple Pile
913.0	10	Plantation Thin	Mow	Grapple Pile / Masticate
914.0	27	Thin to mixed BA (40-80)	None	Mix of Methods
915.0	2	Plantation Thin	Mow	Grapple Pile / Masticate
916.0	1	Plantation Thin	Mow	Grapple Pile / Masticate
917.0	2	Plantation Thin	Mow	Grapple Pile / Masticate
918.0	20	Plantation Thin	Mow	Grapple Pile / Masticate
919.0	34	Plantation Thin	Mow	Grapple Pile / Masticate
920.0	19	Plantation Thin	Mow	Grapple Pile / Masticate
921.0	75	Ladder Fuel Reduction	Mow/Underburn	Pile / Lop & Scatter
922.0	12	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
923.0	55	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
924.0	9	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
925.0	4	Thin to mixed BA (40-80)	None	Mix of Methods
926.0	22	Thin to 60 avg. BA	Mow	Mix of Methods
927.0	3	Thin to 60 avg. BA	Mow	Mix of Methods
928.0	7	Thin to mixed BA (40-80)	None	Mix of Methods
930.0	26	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
931.0	13	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
932.0	24	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
933.0	27	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
934.0	13	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
935.0	14	Thin to 60 avg. BA	Mow/Underburn	Grapple Pile
936.0	26	Thin to mixed BA (40-80)	None	Grapple Pile
937.0	19	Thin to mixed BA (40-80)	None	Mix of Methods
938.0	38	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
939.0	17	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
940.0	14	Thin to 60 avg. BA	Mow/Underburn	Mix of Methods
941.0	36	Thin for Mistletoe	Mow/Underburn	Pile / Lop & Scatter
942.0	18	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
943.0	36	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
944.0	23	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile

Unit Number	Acres	Alt. 4 Tree Prescription	Alt. 4 Fuels Prescription	Alt. 4 Slash Treatment
945.0	5	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
946.0	71	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
947.0	46	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
948.0	3	Thin for Mistletoe	Mow/Underburn	Mix of Methods
949.0	6	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
950.0	10	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
951.0	20	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
952.0	13	Thin to mixed BA (40-80)	Mow	Mix of Methods
953.0	8	Thin to mixed BA (40-80)	Mow	Mix of Methods
954.0	11	Thin to mixed BA (40-80)	Mow	Mix of Methods
955.0	11	Thin to mixed BA (40-80)	Mow	Mix of Methods
956.0	6	Thin to mixed BA (40-80)	Mow	Mix of Methods
957.0	14	Thin to mixed BA (40-80)	Mow	Mix of Methods
958.0	29	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
959.0	20	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
960.0	23	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
962.0	10	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
963.0	13	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
964.0	8	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
965.0	57	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
966.0	45	Thin to mixed BA (40-80)	None	Grapple Pile
967.0	35	Thin to 60 avg. BA	Mow/Underburn	Grapple Pile
968.0	18	Thin to 60 avg. BA	Mow/Underburn	Grapple Pile
969.0	11	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
970.0	3	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
971.0	30	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
972.0	12	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
973.0	8	Thin to mixed BA (40-80)	Mow	Mix of Methods
975.0	16	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
976.0	4	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
977.1	60	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
977.2	2	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
978.0	4	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
979.0	31	Thin to mixed BA (40-80)	None	Mix of Methods
980.0	3	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
981.0	32	Plantation Thin	Mow	Grapple Pile / Masticate
982.0	25	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
983.0	66	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
985.0	29	Thin to mixed BA (40-80)	None	Grapple Pile
986.0	2	Thin to 60 avg. BA	Mow	Grapple Pile

Unit Number	Acres	Alt. 4 Tree Prescription	Alt. 4 Fuels Prescription	Alt. 4 Slash Treatment
987.0	5	Thin to mixed BA (40-80)	Mow	Mix of Methods
988.0	22	Thin to mixed BA (40-80)	Mow	Grapple Pile
989.0	3	Plantation Thin	Mow	Grapple Pile / Masticate
990.0	7	Thin for Mistletoe	Mow/Underburn	Mix of Methods
991.0	8	Plantation Thin	Mow/Underburn	Grapple Pile / Masticate
992.0	32	Thin to mixed BA (40-80)	Mow/Underburn	Grapple Pile
993.0	14	Thin to mixed BA (40-80)	Mow/Underburn	Mix of Methods
994.0	22	Thin for Mistletoe	Mow/Underburn	Pile / Lop & Scatter
995.0	19	Ponderosa Restoration	Mow/Underburn	Grapple Pile
996.0	7	Ponderosa Restoration	Mow/Underburn	Grapple Pile
997.0	36	Thin to mixed BA (40-80)	Mow	Grapple Pile
998.0	34	Thin to mixed BA (40-80)	Mow	Grapple Pile
999.0	11	Thin to mixed BA (40-80)	Mow	Grapple Pile

## Appendix C - Resource Protection Measures for Selected Alternative

Resource Protection Measure	Units
<b>Lava River Cave Area – for Protection and Maintenance of Cave Resources and Recreation and Scenic Values</b>	
Operations of Lava River Cave shall have priority over harvest and fuels operations in the vicinity from May 1 through September 30. Consider visitor safety, smoke, harvest activities, and traffic when planning implementation. Implement activities in LRC units from October 1 through April 30. Activities in May and September would occur on Tuesdays and Wednesdays only. Activities proposed outside these date to be coordinated with Monument management.	96.1, 96.2, 96.3, 97, 98, 99, 100, 101, 278, 833, 836
Post educational information at Lava River Cave (and consider Lava Butte) to explain when, where and why treatments are occurring. Consider using before and after example photos to help the public understand the short term nature of the first order effects of the treatment and the longer term goals of the project. Whenever possible, provide information on treatment locations and timing on forest websites. Consider Monument photo point monitoring requirements when planning Lava Butte photos.	96.1, 96.2, 96.3, 97, 98, 99, 100, 101, 278, 833, 836
Protect chokecherry communities in mowing and underburning units that are located to the south of and adjacent to the Lava River Cave exit and along FS Road 9703 and protect developed recreation site signs along 9703.	96.1, 96.2, 96.3, 97, 98, 99, 100, 101, 278, 714, 809.1, 809.2, 832, 833, 834, 836
Consider blue marking on frontage road	
To retain screening between Lava River Cave and Highway 97, limit treatments on 2 acres of Unit 97 to falling ladder fuels and treating the resulting slash by handpiling and burning. No mowing or underburning should be allowed in this area.	97
Remove or top all hazard trees (as defined by Forest Service Hazard Tree Guide) within 1 ½ tree lengths of the perimeter of Lava River Cave built facilities	96.1, 96.2, 96.3, 97, 98, 99, 100, 101, 278, 833, 836
<b>To Preserve Scenic Quality in Visual Corridors / Scenic View Management Areas</b>	
Locate landings, skid trails, slash piles or staging areas using existing openings and skid trails and minimize bole damage to remaining vegetation along scenic travel corridors and access to developed recreation sites (Highway 97, Forest Roads 9703, 9710, 9711, 9720, 9721, and 9723). Flush cut stumps (6 inches or less with angle cut away from line of sight) in immediate Foreground areas (0-300 feet).	117, 152.2, 220, 277.1, 277.2, 277.3, 367.1, 367.2, 447, 715, 830.1, 831.1, 831.2, 831.5, 840.1, 840.2, 905, 906, 907, 908, 960, 973
Design underburning activities to minimize short-term visual effects by maintaining crown scorch at less than 30 percent and minimize bole scorch up to 10 feet in height.	All NNVM Units
Minimize amount of leave-tree markings and black out tagging units with vertical orange paint on both sides of trees along scenic travel corridors and access to developed recreation sites after sale closes.	All NNVM Units
One year (for retention foreground) and two years (in partial retention foreground) after the work has been completed, clean-up activities along Highway 97, Forest Roads 9703, 9710, 9711, 9720, 9721, and 9723 both within and outside the Newberry National Volcanic Monument boundaries including landings, skid trails, slash piles or staging and removal of flagging and unit boundary tags and other markings will not be highly visible to the casual Forest visitor (Forest Plan Amendment).	129.1, 129.2, 876.1, 876.2, 922, 958, 959, 960, 982, 22.1, 22.4, 22.5, 22.6, 23.1, 218, 801.1, 807.2, 11, 209, 210, 213.1, 275, 307.1, 307.2, 804.1, 818, 821.1, 941, 943, 944, 945, 946, 949, 992,



Resource Protection Measure	Units
	812.1, 812.2, 812.5, 995, 900, 45, 48, 49.1, 49.2, 245, 277.1, 277.3, 803, 842.1, 842.2, 969, 972, 978, 36, 37, 41.1, 41.2, 42, 247, 338, 352, 885, 911, 914, 923, 924, 925, 980, 981, 987, 988
Coordinate with USFS special use administrator regarding (1) the timing of sale marking along utility corridors to identify utility hazards and hazard trees to be considered for timber sale inclusion; and (2) timing of pre-work meetings to ensure utility safety measures are addressed during implementation.	21,22,23,24,867,843,864,875,817,245,48,246,361,814,238,96,809,811,837,810,234,876,20,123,828
Where meeting standards and guides for maintaining vegetation 200 feet (LRMP) or 150' (NNVM) from caves and drainages, avoid making cave entrances obvious to the public	96, 97, 98, 99, 100, 101, 278, 833, 836
To reduce potential for direct fire-related mortality, bark beetle induced mortality, and fire damage which could result in long-term growth loss, conduct burns in a manner that will result in 1) retention of at least 40 percent live crown ratio on dominant and codominant trees, with crown scorch generally less than 50 percent, and 2) minimal cambium scorching of lodgepole pine. Measures will include: 1) initiating burns outside the time of bud elongation (generally between mid-May to early June depending on weather conditions), 2) initiating burns when weather and fuel moisture conditions are favorable for meeting fuel reduction objectives and minimizing damage, and 3) utilizing lighting techniques expected to meet fuel reduction objectives while minimizing damage to residual trees. To minimize cambium scorching of lodgepole pine, lighting techniques to include avoiding direct ignition under lodgepole pine.	All units with prescribed underburning.
<b>To prevent introduction and spread of invasive plants</b>	
Clean all equipment before entering National Forest System lands. Remove mud, dirt, and plant parts from project equipment before moving it into the project area.	All units
The district botanist or her designee will inspect all fill material for the presence of weeds prior to use on the project.	Any source
Avoid locating landings or skid trails where there is an existing weed site.	22, 96, 97, 98, 99, 100, 152, 210, 220, 275, 277, 447, 807, 801, 802, 831, 832, 834, 840
All existing weed sites within activity units will be treated prior to project initiation in the manner determined by the Invasive Plants FEIS and ROD.	22, 96, 97, 98, 99, 100, 152, 210, 220, 275, 277, 447, 807, 801, 802, 831, 832, 834, 840
<b>Soil Resource Protection</b>	
<u>Mechanical Harvest Operations:</u> <ul style="list-style-type: none"> <li>Restrict operations to winter only if feasible, except in Winter Range</li> <li>Minimize as much as possible the extent of the skidding network</li> <li>Retain as leave patches dense stands on rougher terrain i.e. rocky or sloped)</li> </ul> <u>Non-merchantable, post-harvest treatments:</u> <ul style="list-style-type: none"> <li>For young stand management, avoid post-harvest mechanical operations, conduct by hand</li> </ul>	Extent of detrimental soil conditions is high

Resource Protection Measure	Units
<p>as is practicable or combine with fuels treatment</p> <ul style="list-style-type: none"> <li>Limit equipment travel and utilize either small light-weight machines or ones with long boom reach, designate and maximize distance between primary travel routes</li> </ul> <p><u>Fuels Treatments</u></p> <ul style="list-style-type: none"> <li>For mechanical activities use either small light-weight machines or prohibit heavy equipment from operating off of existing primary skid trails.</li> <li>Maintain effective ground cover and organics, retain &gt;50% of litter/duff wherever it exists</li> </ul>	
Sensitive Soil units: 22, 45, 51, 85, 125, 242, 246, 248.1, 313.1, 347.4, 325.1, 356, 801.1, 801.2, 821.3, 842.1, 856, 865	
<p><u>All mechanical activities</u></p> <ul style="list-style-type: none"> <li>Avoidance – defer mechanical activities on slopes &gt; 30%, retain as untreated patches.</li> </ul> <p><u>Prescribed Fire Treatments</u></p> <ul style="list-style-type: none"> <li>Minimize upslope pre-heating when underburning to minimize litter and duff consumption</li> </ul>	Sensitive soils (steep slopes ≥30%)
<p><u>Mechanical harvest operations:</u></p> <ul style="list-style-type: none"> <li>Restrict operations to winter only if feasible</li> <li>Minimize as much as possible the extent of the skidding network</li> </ul> <p><u>Non-merchantable, post-harvest treatments</u></p> <ul style="list-style-type: none"> <li>For young stand management, avoid post-harvest mechanical operations, conduct by hand as is practicable or combine with fuels treatment</li> <li>Limit equipment travel and utilize either small light-weight machines or ones with a boom reach, designate and maximize distance between primary travel routes.</li> </ul> <p><u>Prescribed Fire treatments</u></p> <ul style="list-style-type: none"> <li>Leave as much biomass as is feasible to meet the minimum of fuel objectives</li> <li>In frost pockets retain as much of the litter and duff layers as possible by only burning in concentrations or around the drip lines of trees, treat only the heaviest of slash concentrations</li> <li>Retain as much existing large CWD as is practical where it exists</li> <li>If piling slash, prohibit mechanical operations off of primary skid trails, ensure that all piles are located on the skid trails</li> </ul>	Sensitive soils –frost pockets and lower or mid slopes of cinder cones (slopes < 30%)
<p><u>Mechanical Harvest operations</u></p> <ul style="list-style-type: none"> <li>Too rocky to subsoil and restore, avoid new landings and temporary roads as is feasible.</li> </ul>	Very rocky soils
<p>Many BMPs are employed during operations to protect resources. They generally follow those defined in the guide, “National Best Management Practices for Water Quality Management on National Forest System Lands” (USDA 2012). Local variations to these have evolved over the last several decades to adapt to refined techniques, methods, and products. Listed below are BMPs most commonly practices to minimize detrimental soil impacts that are applicable to the activities being proposed in the Rocket project area:</p> <ul style="list-style-type: none"> <li>Convey to all equipment operators the need to limit ground disturbance as much as is feasible. Avoid traveling over undisturbed ground unless necessary.</li> <li>Avoid repetitive passes by heavy equipment except over designated primary skidding routes (i.e., roads or skid trails). Restrict travel of heavy equipment off designated primary skid routes to two passes or fewer.</li> <li>Limit, as is feasible, heavy equipment, particularly tracked machinery from pivoting or unnecessary side-hill travel on slopes greater than 15 percent. Travel should mostly be down the fall-line and perpendicular to the contour of the slope.</li> <li>Minimize travel of heavy equipment on slopes greater than 15 percent late in the season when soils are extremely dry and susceptible to excessive soil displacement.</li> <li>Suspend operations during wet periods when soil moisture is high and heavy equipment</li> </ul>	All Units unless more restrictive measures already prescribed for specific units.

Resource Protection Measure	Units
<p>tracks sink deep (i.e., half the width of the track) below the soil surface with one or two pass, particularly during spring thaw or after heavy rains.</p> <ul style="list-style-type: none"> <li>• Skidding, forwarding, or haul operations should avoid using the bottom of dry swales or draws as primary travel routes (i.e., temporary roads, landings, or skid trails).</li> <li>• Operations on sensitive soils or where the extent of existing detrimental soil impacts is high should be conducted over frozen ground as is feasible, or when the snowpack is at a depth sufficient enough to protect mineral soil. Travel of heavy equipment off of designated primary routes on sensitive soils should be avoided as much as is feasible. All attempts should be made to avoid new landings and skid trails in previously managed stands on sensitive soils.</li> <li>• For ground-based cutting and skidding operations, re-use existing log landings and primary skid trails whenever feasible, or roads identified to be decommissioned. Locations of new landings, primary skid trails, and temporary roads must be approved by the Forest Service prior to use.</li> <li>• For whole-tree harvest systems, primary skid trails will be spaced at least 100 to 150 feet apart, except at convergence zones around landings or where terrain limitations dictate otherwise.</li> <li>• For cut-to-length harvest systems, spacing of primary forwarder trails should be at least 65 feet, except where terrain limitations dictate otherwise. To the extent possible, slash mats should be deposited over primary forwarder trails during cutting operations.</li> <li>• Restrict grapple skidders to designated areas only (i.e., roads, landings, primary skid trails) and on slopes 30 percent or less.</li> <li>• The location of temporary roads will be approved by the Forest Service prior to construction. Temporary roads shall be located on terrain where minimal width can be maintained, and where the least amount of cut-and-fill construction is needed.</li> <li>• Avoid locating temporary roads on sensitive soils, and prohibit them from being routed down through the bottoms of swales, draws, abandoned channels, or dry natural drainageways.</li> <li>• Landings and temporary roads shall be constructed using drainage control structures. Erosion and sediment control measures should be placed to prevent accelerated erosion and off-site transport of sediment to a water source as is needed.</li> <li>• Subsoil or decompact all temporary roads to a depth of at least 16 to 24 inches after use. Outslope any segments requiring a cut into the hillslope.</li> <li>• Piling of post-activity fuels should be limited, as is feasible, to existing hardened surfaces (i.e., roads, landings, skid trails). Restrict travel of heavy equipment off designated primary skid routes to two passes or fewer. On sensitive soils, prohibit machine travel off of primary skid trails altogether.</li> <li>• Locate machine constructed slash piles on existing hardened surfaces (i.e., roads, landings, skid trails) as much as possible.</li> <li>• Minimize the amount of large diameter CWD that is incorporated into slash piles, particularly those that are relatively sound or "buckskin" (i.e., decay classes 1 through 3, particularly pieces that are gray and without bark). Except where there are heavy concentrations of residual dead and downed wood, retain as much residual large CWD as possible (where it exists). In previously harvested areas, refrain from incorporating existing CWD in slash piles as much as is feasible.</li> <li>• Underburning activities should be conducted so that at least 40 percent of the duff and litter layer across an activity area is retained. Target underburning when relative humidity and fuel moistures are favorable for litter and duff retention so that as much of the</li> </ul>	

Resource Protection Measure	Units
<p>effective ground cover as possible is maintained. Litter and duff layers should have enough moisture to detect by hand, and not be too brittle.</p> <ul style="list-style-type: none"> <li>Sites where the organic layers are thin, such as frost pockets or heavily disturbed areas where effective ground cover is less than 50 percent aerially, conduct underburning in a manner that retains at least 50 percent of the duff and litter layer <i>depth</i>.</li> <li>Retain a portion of live understory (where it exists). To facilitate an increase after fire in the production and turnover of the litter, fine roots, and soil biota. A proportion of the underburn should be non-lethal so that a mosaic of the understory is retained.</li> <li>Minimize the consumption of sound, large diameter CWD during prescribed underburns. Where CWD is close to or in contact with the ground attempt to minimize the duration and intensity that it burns to lessen the effects to soils.</li> <li>Restore as much machine-constructed fire lines as possible by redistributing displaced topsoil and unburned woody debris over the disturbed surface.</li> </ul>	
<b>To Minimize Impacts to Wildlife and to Preserve Wildlife Habitat Components</b>	
Areas of quality hiding cover will be retained across the project area in untreated patches to total approximately 10% of treatment acres.	All units
Retain trees of high value to wildlife on site, except where a hazard. Examples include snapped-out tops, trees with cavities, true fir with conks that would indicate a future hollow log, non-lodgepole trees with multiple tops, and trees with very large limbs.	All units
Retain ponderosa pine trees less than 21" dbh with old tree characteristics (from Van Pelt 2008) except where they are either: 1) ladder fuels which pose a threat to larger diameter trees or 2) dwarf mistletoe infected and contribute to infection potential of desired understory trees. Ponderosa pine old tree characteristics include all of the following: 1) orange bark with plates generally more than three times wider than the darker fissures that separate them, 2) rounded crown, and 3) below the main crown, few if any dead branches present and knots not noticeable.	All units
Green Tree Replacements (GTRs) will be retained at 6 per acre within openings.	22.3, 123.2, 308.2, 308.4, 354, 451.2, 451.3, 716, 811.3, 839.2, 903
Where units occur within connectivity corridors, thinning will be modified in the following units, to retain adequate canopy cover (i.e. rather than 40 sq. ft. basal area, a minimum of 60 sq. ft. basal area will be retained).	
Retain at least 25 percent of existing shrub cover across units after prescribed burning operations.	All burning units
Place a minimum 300-foot no treatment buffer around guzzlers, which are located adjacent to the treatment units.	936, 937
Implementation of prescribed underburning and mowing is subject to standard and guide M7-26 which limits those activities to 2.0-2.5% of the forest-wide MA-7 acreage annually. Rocket implementation opportunity within MA-7 will therefore be determined during annual Forest-wide MA-7 assessment.	20-23, 96-102, 106, 109, 110, 117, 123, 125, 126, 129, 152, 218, 220, 229-231, 234, 238, 278, 325, 367, 446, 451, 800-802, 807-811, 814, 815, 823-841, 876, 877, 902, 903
Within MA-7, commercial harvest, precommercial thinning, mechanical shrub treatments, and	20-23, 96-102, 106,

Resource Protection Measure	Units
prescribed burning operations are preferred to occur between April 1 and November 31. Consult wildlife biologist for operating in winter range outside these dates.	109, 110, 117, 123, 125, 126, 129, 152, 218, 220, 229-231, 234, 238, 278, 325, 367, 446, 451, 800-802, 807-811, 814, 815, 823-841, 876, 877, 902, 903
Conduct underburning in northern goshawk post-fledging areas (PFAs) between September 1 and March 1 and in coordination with a Deschutes NF wildlife biologist. This condition may be waived in a particular year if nesting or reproductive success surveys reveal that the species indicated is non-nesting or that no young are present that year.	North: 22.5, 22.6, 23.1, 23.4, 802.3, 807.1, 807.2, 941, 946, 948, 949, 992 South: 244.1, 244.2, 817 (and any other units if nests are located)
Report raptors encountered before or during management activities (including layout, implementation, and post-sale activities) to a Deschutes NF wildlife biologist. A "no-treatment" buffer may also be placed around the nest in consultation with a Deschutes NF biologist.	All units
Protect raptor nests from disturbance according to the table below. Disturbance activities include temp road construction, small tree thinning, timber harvest, grapple piling, mowing, prescribed slash burning, and underburning operations. <div> <div>Cooper's hawk</div> <div>April 15-August 31 (WL-19)</div> </div> <div> <div>Sharp-shinned</div> <div>April 15-August 31 (WL-19)</div> </div> <div> <div>Northern goshawk</div> <div>March 1-August 31 (WL-3)</div> </div> <div> <div>Red-tailed hawk</div> <div>March 1-August 31 (WL-3)</div> </div> <div> <div>Osprey</div> <div>April 1-August 31 (WL-3)</div> </div> <div> <div>Golden Eagle</div> <div>February 1 – July 31 (M3-15)</div> </div> This condition may be waived in a particular year if nesting or reproductive success surveys reveal that the species indicated is non-nesting or that no young are present that year.	None currently identified
Retain existing snags ( $\geq 10''$ dbh) except where snags are felled for hazard trees along roads, log landings, or for occupational safety. Felled snags will be retained to provide down wood.	All units <b>except:</b> 33, 36, 37, 61.3, 65, 247, 335, 338, 366, 705, 707, 812.1, 812.2, 812.3, 812.4, 812.5, 817, 863, 864, 867, 868, 881, 882, 887, 995, 996
Avoid larger ( $\geq 10''$ dbh) snags by locating skid trails and landings away from them where possible.	All units
Current direction on minimum snag levels per plant association group: <ul style="list-style-type: none"> <li>Ponderosa pine: 4 snags/acre (3/acre <math>\geq 10''</math> dbh; 1/ac <math>\geq 20''</math> dbh)</li> <li>Mixed conifer: 4 snags/acre (3/acre <math>\geq 10''</math> dbh; 1/ac <math>\geq 20''</math> dbh)</li> <li>Lodgepole pine: 6 snags/acre <math>\geq 10''</math> dbh</li> </ul>	All units
In ponderosa pine restoration units, down wood may be removed to facilitate meeting stand prescriptions (operational feasibility) except in identified units where high density patches of down wood is retained for marten habitat.	33, 65, 247, 37, 335, 366, 812.1, 812.2, 812.3, 812.4, 812.5, 887, 995, 996
Where possible, retain cull material greater than or equal to 9 inches in diameter rather than	All units

Resource Protection Measure					Units
moving it to landings.					
The following are down wood requirements from the Eastside Screens:					Underburning and piling units
Vegetative Series	Pieces per Acre	Diameter Small End	Piece Length	Total Lineal Length	
PP	3-6	12"	>6 feet	20-40 feet	
MC	15-20	12"	>6 feet	100-140 feet	
LP	15-20	8"	>8 feet	120-160 feet	
Post-sale monitoring will determine the extent to which measures are necessary for down wood retention.					
Options for meeting down wood requirements (where available) include:					
<ul style="list-style-type: none"><li>Retain down wood ≥ 8" in lodgepole pine and ≥ 12" in all other PAGs. If sufficient size classes are not present, then the largest available down logs would be substituted. Only activity-created slash below these maximum diameters would be piled and utilized or disposed.</li><li>Do not include material &gt; 9" in grapple and hand piles for all plant associations.</li><li>If snag and down wood diameters do not meet objectives within a unit, retain largest material available.</li><li>Ensure that consumption will not exceed three inches total (.5 inches per side) in featured log sizes.</li><li>Down wood may be manipulated (shifted, clumped, grouped, drive over, etc.) only as necessary to meet unit objectives.</li><li>Conduct pile burning during conditions that eliminate or minimize fire creep.</li></ul>					
Where identified, high quality snags would be protected by a variety of methods (e.g. no direct ignition, lining, spot mop-up, etc.)					All underburning units
Conduct prescribed fire activities during optimal conditions that prevent smoke from entering Lava River Cave, and other identified caves. Preferred months are May and October.					96.1, 96.2, 96.3, 97, 98, 99, 101, 278, 833, 836
Avoid timber harvest, vegetation removal, underburning, and mowing on rock outcrops in identified units					
Trees will not be removed except for safety in a 200 foot (NNVM Units) or 150 foot (LRMP Units) radius around cave entrances and in feeder drainages with slopes of less than 30 degrees. There will be no ground-disturbing activities on slopes steeper than 30 degrees adjacent to cave entrances.					LRC: 96.2, 97, 98, 99, 100, 278, 325.4, 347.4, and 836 and any other caves or infeeder drainages discovered in the units during project implementation
Trees should not be felled across fissures or caves and avoid the use of mechanized equipment in any fissures or caves encountered.					all units
To Protect Cultural Resources					
Eligible sites to be protected during operations through a variety of heritage resource protection methods including but not limited to avoidance, operating over frozen ground, limiting equipment turning or maneuvering.					The Heritage Resources Specialist Report identifies affected units and site type.
Sites to be avoided will be flagged prior to project unit layout and areas to protect will be					

Resource Protection Measure	Units
provided to the contracting representative.	
In the event that previously unknown sites or artifacts are found during project implementation, they will be flagged and operations in the area avoided until an archaeologist is consulted.	All units
<b>To Protect Range Resources</b>	
Protect the range study plot – Condition and Trend Transect #5. Site will be flagged by range program and excluded from any treatment. Township 20 South, Range 11 East, SE ¼ Section 2.	Unit 816